Taylor Winter

SENIOR DATA SCIENTIST

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Summary

I currently work providing statistical advice and conducting analytics for Stats NZ and Ngāi Tahu (a large South Island iwi). I have extensive experience working on a range of survey and administrative datasets, mainly using a large data warehouse of Government data called the Integrated Data Infrastructure (IDI). My background is in Bayesian multi-level modelling and structural equation modelling. I have worked on a range of projects including the development of official statistics for government and big data pipeline development with Spark and Vodafone.

In my academic work I conduct research using a range of longitudinal datasets, daily diary studies, and national surveys. This has lead to a significant increase in my exposure to structural equation models and multi-level modelling, with a number of publications currently in review or preparation. Alongside my research, I am also developing software to make advanced structural equation modelling more accessible to users without advanced programming and statistical knowledge.

Employment

University of Otago   *2019 - Present*
ASSISTANT RESEARCH FELLOW

Statistics New Zealand   *2019 - Present*
SENIOR DATA SCIENTIST

Te Runanga o Ngai Tahu   *2018 - Present*
STATISTICIAN

Statistics New Zealand   *2016 - 2019*
STATISTICAL ANALYST

University of Otago   *2013 - 2016*
SENIOR RESEARCH ASSISTANT

Queensland Department of Natural Resources and Mines   *2013 - 2015*
PROJECT OFFICER

University of Otago   *2012 - 2014*
RESEARCH ASSISTANT

Education

Victoria University of Wellington   *Wellington*
DOCTOR OF PHILOSOPHY   *Present*

University of Otago   *Dunedin*
MASTER OF SCIENCE   *2016*

Awards and scholarships

2018	IPANZ Young Professional Of The Year (Top 3)	*Institute of Public Administration NZ*
2018	Victoria Doctoral Scholarship (Differed)	*Victoria University of Wellington*
2015	Otago Research Master's Scholarship	*University of Otago*

Publications

1. Winter, T, B Riordan, A Surace, and P Jose (In Review). A tutorial on the use of informative Bayesian priors for substance research with minority groups. *Addiction*.

2. Riordan, B, T Winter, J Flett, and DSPJ ans T. Conner (In Review). Does the Fear of Missing Out (FoMO) moderate the relationship between social networking use and affect? A daily diary study. *Computers in Human Behavior*.

3. Winter, T, T Conner, and P Jose (In Review). Identifying Profiles of Affective Change: An Ecological Momentary Assessment of Flourishers. *Emotion*.

4. Winter, T, B Riordan, and A Surace (2019). The relationship between hazardous alcohol use and discrimination among Māori in Aotearoa New Zealand. *Addiction*.

5. Surace, A, B Riordan, and T Winter (2019). Do New Zealand sexual minorities engage in more hazardous drinking than non-sexual minorities? *Drug and Alcohol Review*.

6. Pittar, N, T Winter, L Falland-Cheung, D Tong, and J Waddell (2018). Scalp simulation – A novel approach to site-specific biomechanical modeling of the skin. *Journal of the Mechanical Behavior of Biomedical Materials* **77**, 308–313.

7. Falland-Cheung, L, JN Waddell, MS Lazarjan, MC Jermy, T Winter, D Tong, and PA Brunton (2017). Use of agar/glycerol and agar/glycerol/water as a translucent brain simulant for ballistic testing. *Journal of the Mechanical Behavior of Biomedical Materials* **65**, 665–671.

8. Franz, EA, Y Fu, M Moore, T Winter, T Mayne, R Debnath, and C Stringer (2016). Fooling the brain by mirroring the hand: brain correlates of the perceptual capture of limb ownership. *Restorative neurology and neuroscience* **34**(5), 721–732.

9. Tong, D, T Winter, J Jin, A Bennett, and J Waddell (2015). Quantification of subconcussive impact forces to the head using a forensic model. *Journal of Clinical Neuroscience* **22**(4), 747–751.

10. Winter, TJ and EA Franz (2014). Implication of the anterior commissure in the allocation of attention to action. *Frontiers in Psychology* **5**.

Presentations and posters

Using overseas surveys to produce reliable models of sexual minorities   *2019*

New Zealand Population Conference, Wellington

Alcohol use disparities among gender and sexual minorities in New Zealand (Poster)   *2019*

Collaborative Perspectives on Addiction, Rhode Island

Iwi data tool using integrated data and R Shiny   *2017*

Iwi Data Conference, Christchurch

Using data to support a collective impact model of Maori potential   *2016*

Population Association of New Zealand Conference, Christchurch

The effect of motherhood on income   *2016*

New Zealand Association of Economists conference, Wellington

A machine learning approach to classifying life course outcomes   *2016*

Longitudinal and multivariate analysis network (Stats NZ), Wellington

Methodology for comparing incomes between parents and non-parents   *2016*

Statistical methods seiminar (Stats NZ), Wellington

Inter-hemispheric inhibition in the autistic brain   *2014*

Neuroethics seminar, Dunedin

Skills

- Languages such as SQL, R, Python, SAS, SPSS Syntax, Bash
- Structural equation modelling and causal analysis
- Bayesian statistics, using *brms* in R (Stan backend)
- Machine learning techniques such as random forests and neural nets
- Strong background using big data, i.e. the Integrated Data Infrastructure (IDI) at Stats NZ
- Knowledge of Tikanga Māori